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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,041	10/17/2003	Philip Gleason	BOC9-2003-0021 (390)	9201

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EXAMINER	
NG, EUNICE	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/688,041	GLEASON ET AL.	
	Examiner	Art Unit	
	Eunice Ng	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,8-10,13-15,20-22,25 and 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-10,13-15,20-22,25 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/21/07 has been entered.

Response to Amendment

2. In response to the Office Action mailed 9/21/07, Applicants have submitted an Amendment, filed 11/21/07, amending claims 1, 2, 8, 9, 13, 14, 20, 21 and 25, without adding new matter, and arguing to traverse claim rejections.

Response to Arguments

3. Applicant's arguments with respect to claims 1-3, 8-10, 13-15, 20-22, 25 and 26 have been considered but are moot in view of the new ground(s) of rejection, below.

Claim Rejections - 35 USC § 112

4. Claims 9, 21 and 25 have been amended and these changes are acceptable. Thus the rejections have been withdrawn.

Claim Objections

5. Claims 1, 2, 8, 9, 13, 14, 20 and 25 have been amended and these changes are acceptable. Thus the objections have been withdrawn.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3, 8-10, 13-15, 20-22, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (US Patent 5,864,814), in view of Miyatake *et al.* (hereinafter "Miyatake," US Patent 5,842,167) and Campbell *et al.* (hereinafter "Campbell," US Patent 6,366,883), and further in view of Hejna, Jr. (US Patent 7,043,433).

Regarding claims 1, 13 and 25, Yamazaki teaches a system, machine-readable storage, and computer-implemented method for debugging and tuning synthesized audio (col. 22, line 28 – col. 26, line 28; Figs. 26-33), comprising the steps of: (c) displaying a waveform corresponding to the synthesized audio generated from concatenated phonetic units; and (e) displaying an original recording containing a selected phonetic unit; (col. 23, ll. 17-24, teaches "original waveform display window…synthesized waveform display window"); and (d) displaying parameters corresponding to at least one of the phonetic units (col. 23, ll. 41-49, "correlation between the parameters on the time axis"; col. 23, line 66 – col. 24, line 43, "pitch pattern W1…pitch pattern W2 of the synthesized waveform…pitch label"; col. 25, ll. 17-32, "velocity

indicating a volume; col. 23, ll. 41-49, "correlation between the parameters on the time axis"; col. 25, ll. 61-67, "change of velocity…change of pitch…manual operation"; col. 26, ll. 23-28, "parameter"; Fig. 33 illustrates the pitch/velocity for a certain phoneme, which provides a visual indication of the pitch/velocity values (displaying parameters)).

Yamazaki teaches receiving voice-generating information (Abstract, col. 10, ll. 15-23). Yamazaki does not explicitly teach, but Miyatake teaches, (a) receiving a user-supplied text with a visual user interface; and (b) generating synthesized audio generated from concatenated phonetic units, the synthesized audio being a voice rendering of the user-supplied text; (col. 3, ll. 6-26, teaches "FIG. 1…inputting means…for inputting text data, a command and hand-written characters…morpheme analyzing means 2…divide the text data into minimum language units each having the meaning…speech language processing means 4 determines synthesis units which are suitable for producing a sound from text data thereby to generate prosodic data"; Abstract, "synthesizing speech from text data…text data displayed on a screen" and Figs. 1-4). It would have been obvious for one of ordinary skill in the art at the time the invention was made to receive textual input and generate from the input synthesized audio as in Miyatake because text to speech synthesizing technology is readily available, and as Miyatake teaches in col. 2, ll. 32-34, this method also allows for operation in response to receiving hand-written text data.

Yamazaki does not teach (d) the parameters including configuration parameters comprising at least one weight for adjusting at least one search cost function, the at least one weight comprising at least one of a pitch cost weight and a duration cost weight. However, Campbell teaches search cost function weights, at least one weight for adjusting at least one search cost function, the at least one weight comprising at least one of a pitch cost weight and a

duration cost weight (col. 9, line 58 – col. 10, line 11, teaches, "optimal weighting coefficient...[e]mployed in this case are phonemic features such as intonation position and intonation mode as well as prosodic feature parameters such as...phoneme duration…"; col. 15, ll. 28-36, teaches "weighting coefficient…target sub-costs in order to select out a speech sample that is the closest when the acoustic distances of the target speech unit, if possible, could be directly determined"; Fig. 3). It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Yamazaki and Miyatake with Campbell because Campbell teaches an advantage is that the speech segments of the speech waveform signals in the speech waveform database can be directly utilized (col. 15, ll. 33-36).

Yamazaki teaches: (f) receiving an editing input from the user (col. 25, line 61 – col. 26, line 16, "change of velocity…change of pitch…manual operation"); and (g) adjusting at least one configuration parameter in accordance with the editing input wherein adjusting includes repositioning a phonetic alignment marker (col. 23, ll. 29-40, teaches in "step S104, to set a duration length of each phoneme in relation to the original waveform displayed on the original waveform display window 25B, labels [phonetic alignment markers] each separating phonemes from each other along the direction of a time axis are given through a manual operation"; col. 26, ll. 3-5, teaches, "If change of a label is requested (step S114), system control returns to step S104, and the label [phonetic alignment marker] is changed [repositioned] through a manual operation"; see Fig. 24, elements S104 and S114).

Yamazaki teaches wherein the at least one configuration parameter is stored in a configuration file (Fig. 33; col. 25, ll.40-52, "new filing"; col. 25, line 61 – col. 26, line 28, "change of velocity…change of pitch…for each label"; col. 26, ll. 29-53, "change of parameters

in…original synthesized waveform…object for editing"; col. 23, ll. 1-16, "making new voice-generating information").

Yamazaki fails to teach, but Miyatake teaches, wherein the at least one configuration parameter is stored in a text-to-speech engine configuration file (col. 1, ll. 55-62, "receives text data and edition data…synthesizes speech corresponding to the character data"; col. 4, ll. 20-44, "pauses are created"; Figs. 3-4; Miyatake teaches a visual speech synthesis editing system, like Yamazaki, and where it is used in a text-to-speech environment). Therefore, it would have been obvious to modify the teaching elements of Yamazaki with Miyatake in order to use editing data to produce a natural sounding spoken output from text, as described by Miyatake (col. 1, ll. 55-62 and ll. 20-30).

Yamazaki, Miyatake and Campbell do not explicitly teach, but Hejna, Jr. suggests: (h) highlighting in the display of the original recording at least one user-selected phonetic unit (Fig. 25, ll. 15-66, teaches, "produce a two dimensional graph…time and possibly text or phonetic words, displayed on a horizontal axis…displays a two dimensional representation of the input MW (the input audio or audio-visual work) with text or phonetic labels…well known…phonetic information…displayed as an overlay on top of a graphical representation of a speech waveform…Audience member (user) can highlight regions of the text displayed on Graphical Display…to identify specific portions of the input MW that are associated with the highlighted text"; see also Figs. 5 and 6, particularly element 6100). It would have been obvious for one of ordinary skill in the art at the time the invention was made to include highlighting in the display of the original recording at least one user-selected phonetic unit, as in Hejna, Jr., so that the user can easily keep track of his or her selection visually.

Yamazaki teaches: (i) correcting elements of a text-to-speech segment dataset of parameters corresponding to a segment of the synthesized audio identified to be problematic (col. 25, line 61 – col. 26, line 16, teaches operations for changing [correcting] a velocity, pitch, phoneme, label, and/or voice tone setting);

(j) generating a new synthesized waveform corresponding to one or more adjusted parameters (see for example, Figs. 32 and 33, particularly elements 25E, E1, E11 and E12, which illustrate new synthesized waveforms corresponding to a velocity adjustment, as described in col. 25, ll. 18-39 and 61-67); and

(k) repeating steps (b) – (j) until a desired synthesized output is generated (see Fig. 24; col. 25, ll. 17-22, teaches "if it is determined…that an operation for terminating the processing for making new voice-generating information has not been executed, and at the same time that an operation for changing any parameter has not been executed, the processing…is repeatedly executed"; see also col. 25, ll. 53-60).

Regarding claim 26, Yamazaki teaches wherein the parameter updates and segment dataset corrections are applied in regenerating the synthesized audio (see for example, Figs. 32, 33 and 37, particularly elements 25E, E1, E11 and E12, which illustrate new synthesized waveforms corresponding to a velocity adjustment, as described in col. 25, ll. 18-39 and 61-67; see col. 25, ll. 40-52, "new filing"; col. 25, line 61 – col. 26, line 28, "change of velocity…change of pitch…for each label"' col. 26, ll. 29-53, "change of parameters in…original synthesized waveform…object for editing"; and col. 23, ll. 1-16, "making new voice-generating information"; the information is a set of data for the voice segment (segment

dataset), and is used to display the information in Fig. 33, and edits the information and the corresponding display).

Regarding claims 2 and 14, Yamazaki teaches displaying the parameters responsive to a user selection of at least a portion of the waveform, the displayed parameters correlating to the selected portion of the waveform (col. 26, ll. 29-47, "editing…basically the same processing…file as an object for editing is selected…treated as an original waveform," if a user selects a file then he/she selects the entire waveform, at least a portion of the waveform, which is put on the display with the pitch, velocity, etc.).

Regarding claims 3 and 15, Yamazaki teaches identifying a portion of the waveform responsive to a user selection of at least one of the parameters, the identified portion of the waveform correlating to the selected parameters (col. 25, ll. 18-39, "velocity adjustment…velocity E1 in a time zone for the phoneme of 'ka'…subdivided to velocity E11"; col. 25, ll. 61-67, "value of pitch…for each label"; Figs. 31-33; e.g. choosing the velocity for one of the phonemes to be changed identifies the corresponding phoneme/portion so that that portion of the waveform can be changed).

Regarding claims 8 and 20, Yamazaki teaches wherein said adjusting step comprises at least one action selected from the group consisting of deleting a pitch mark, inserting a pitch mark, and repositioning a pitch mark by deleting a phonetic unit label, adding a phonetic unit label, modifying a phonetic unit label, and repositioning the phonetic unit boundaries (see col.

24, ll. 6-43, "deletion of a pitch label…adding a new label…movement"; and col. 25, line 63 – col. 26, line 8).

Regarding claims 9 and 21, Yamazaki teaches wherein [said displaying parameters step] further comprises the step of displaying a waveform from the original recording along with the phonetic unit (col. 23, ll. 8-16, "natural voice is inputted…original waveform is displayed"; Fig. 33).

Regarding claims 10 and 22, Yamazaki fails to explicitly teach, but Miyatake teaches wherein edits to the waveform adjust parameters in the segment dataset (Figs. 3-4, col. 4, ll. 20-36, "displayed characters are edited by the inputting means…inputting means…separate…from each other…pauses are created between"; inserting the pauses edits the waveform and adjusts the starting and ending positions [parameters] of the phonemes).
Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Yamazaki with Miyatake in order to synthesize a natural speech that is close to the way a human being speaks, as taught by Miyatake in col. 1, ll. 20-30.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunice Ng whose telephone number is 571-272-2854. The examiner can normally be reached on Monday through Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. N./
Examiner, Art Unit 2626

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626